

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A video signal processing apparatus, comprising:
a plurality of contour correction modules to correct a digital video signal to be input
for a contour; and

a selection module to select any of said plurality of contour correction modules,
~~wherein~~ wherein:

~~the one~~ a predetermined contour correction module among said plurality of contour
correction modules includes a contour portion detection module to detect a contour portion
of said input digital video signal, and a contour portion correction module to correct ~~the~~ a
contour portion of ~~the~~ a digital video signal corrected ~~for a contour~~ by said one of the
contour correction ~~module~~ modules other than said predetermined contour correction
module; and

said selection module selects ~~the~~ a digital video signal output from said contour
portion correction ~~module~~ module, when the contour portion is detected by said contour
portion detection module.

2. (Currently amended) The video signal processing apparatus according to
claim 1, ~~wherein~~ wherein:

said contour correction module other than said predetermined contour correction
module ~~corrects a~~ corrects contour by generating an undershoot and an overshoot in the
contour portion of said input digital video signal.

3. (Currently amended) The video signal processing apparatus according to claim 2, ~~wherein~~ wherein:

said contour portion correction module includes a contour correction signal generation module to generate a contour correction signal in accordance with the contour portion of said input digital video signal, and
_____ a mixing module to mix said contour correction signal ~~output~~ from said contour correction signal generation module and the corrected digital video signal ~~whose contour is corrected by said~~ from the contour correction module other than said predetermined contour correction module at a predetermined ratio and to suppress the undershoot of said contour-corrected digital video signal; and

said selection module selects an output digital signal of said mixing ~~module~~ module, when the contour portion is detected by said contour portion detection module.

4. (Currently amended) The video signal processing apparatus according to claim 3, ~~wherein~~ wherein:

said contour portion detection module judges whether the detected contour portion is a rising contour portion or a falling contour portion, and delays detection timing of a period ~~of said contour portion of said contour portion period~~ input digital video signal when the detected contour portion is ~~the falling contour portion~~; and

said contour correction signal generation module generates said ~~generated~~ contour ~~portion~~ correction signal in accordance with said the contour portion period detected by said contour portion detection module ~~detected~~.

5. (Currently amended) The video signal processing apparatus according to claim 1, wherein said contour portion detection module ~~comprises~~ comprises:

a first module to assume a flat portion to exist when a fluctuation of said digital video signal is within ~~the~~ a range of a preset threshold, and

a second module, when a slope between said two flat portions detected by said first module always ascends or descends and the absolute value of the difference of a signal level in the slope is higher than ~~the~~ a preset threshold, to assume the contour portion of said digital video signal to exist between the two flat portions.

6. (Currently amended) The video signal processing apparatus according to claim 1, wherein said contour portion detection module ~~comprises~~ comprises:

a first module to assume a flat to exist when ~~the~~ fluctuation of said digital video signal is within ~~the~~ a range of a preset threshold,

a second module to assume a changing point at which ~~the~~ a slope on which the fluctuation of said digital video signal sequentially ascends or descends moves to ~~the~~ a slope on which it descends or ascends to be ~~the~~ a crest of a peak or ~~the~~ a root of a valley, and

a third module, when ~~the~~ absolute value of ~~the~~ a difference of the signal level between flat portion detected by said first module and changing point detected by said second module is higher than the preset threshold, to assume the contour portion of said digital video signal to exist between said flat portion and said changing point.

7. (Currently amended) The video signal processing apparatus according to claim 1, wherein said contour portion detection module ~~comprises~~ comprises:

a first module to assume a first changing point at which a slope on which the fluctuation of said digital video signal subsequently ascends or descends moves to ~~the~~ a slope on which it descends or ascends to be ~~the~~ a crest of a peak or ~~the~~ a root of a valley and to assume a second changing point at which ~~the~~ a slope on which it sequentially descends or ascends from said first changing point and then it ascends or descends to be the root of the valley ~~and~~ or the crest of the peak, and

a ~~third~~ second module to assume the contour portion of said digital video signal to exist between said first and second changing points when the absolute value of ~~the~~ a difference between said changing points detected by said first module is higher than ~~the~~ a preset threshold.

8. (Currently amended) A camera device, comprising:

an imaging module to photograph an object and output an electric signal;

a signal processing module to process the electric signal output from said imaging module to generate a first digital video signal; and

a video signal processing module apparatus according to claim 1, to correct the contour of said first digital video signal, ~~wherein the video signal processing apparatus according to claim 1 is used as said video signal processing module.~~

9. (Currently amended) A video signal processing method, comprising the steps of:

generating a first digital video signal corrected for a contour by enhancing the contour-corrected digital video signal to be input for the contour and a second digital video

signal that suppresses an undershoot in ~~the~~ a contour portion in which said first digital video signal is enhanced; ~~and~~

selecting and outputting said second digital video signal in a contour portion ~~period~~,
period; and

_____selecting and outputting the first digital signal in a period other than said contour portion period.

10. (Currently amended) An imaging method for processing a video signal obtained from an imaging module, obtaining a digital video input signal from the video signal, and correcting said digital video input signal for a contour, comprising the steps of:

generating a first corrected digital video signal corrected for the contour by enhancing ~~the~~ a contour portion of a the digital video input signal ~~to be input~~ and a second corrected digital video signal that suppresses an undershoot in the contour portion in which said first corrected digital video input signal is enhanced; ~~and~~

selecting and outputting said second corrected digital video signal in a contour portion ~~period~~, period; and

_____selecting and outputting the first corrected digital signal in a period other than said contour portion period.

11. (Currently amended) An interpolation device, comprising:

a plurality of interpolation means that interpolates a digital video signal to be input;
and

a selection means that selects any of said plurality of interpolation means, ~~wherein~~
wherein:

~~the one~~ a predetermined interpolation means among said plurality of interpolation means includes an edge detection means that detects an edge of said digital video signal and an edge enhancement means that enhances the edge, and

said selection means selects an interpolation signal in which the edge is enhanced by said edge enhancement means when the edge is detected by said edge detection means.

12. (Currently amended) The interpolation device according to claim 11,
~~wherein~~ wherein:

said edge enhancement means includes an edge generation means and a mixing
~~means;~~ means;

said mixing means includes an operation means that mixes an edge signal generated by said edge generation means and an output signal of an interpolation means other than said predetermined interpolation means ~~among said plurality of interpolation means~~ at a desired ratio; and

said selection means selects ~~the~~ an output signal of said mixing means when the edge is detected by said edge detection means.

13. (Original) The interpolation device according to claim 12, wherein
said edge generation means generates an edge signal represented in frequency exceeding one half time of sampling frequency of said digital video signal.

14. (Currently amended) The interpolation device according to 11, wherein said edge detection means ~~comprises~~ comprises:

a first means for assuming a flat portion to exist when the fluctuation of said digital video signal is within ~~the~~ a range of ~~the~~ a preset threshold; and

a second means for assuming the edge of said digital video signal to exist between two flat portions when ~~the~~ a slope between said two portions detected by said first means always ascends or descends and the absolute value of ~~the~~ a difference of a signal level on the slope is higher than a preset threshold.

15. (Currently amended) The interpolation device according to claim 11, wherein said edge detection means ~~comprises~~ comprises:

a first means for assuming a flat portion to exist when the fluctuation of said digital video signal is within ~~the~~ a range of ~~the~~ a preset threshold;

a second means that assumes a changing point at which ~~the~~ a slope on which the fluctuation of said digital video signal subsequently ascends or descends moves to ~~the~~ a slope on which it descends or ascends to be ~~the~~ a crest of a peak or ~~the~~ a root of a valley; and

a third means for assuming the edge of said digital video signal to exist between said flat portion and said changing point when the absolute value of ~~the~~ a difference of the signal level between the flat portion detected by said first means and the changing point detected by said second means is higher than a preset threshold.

16. (Currently amended) The interpolation device according to claim 11, wherein said edge detection means ~~comprises~~ comprises:

a first means for assuming a first changing point at which a slope on which ~~the~~ fluctuation of said digital video signal subsequently ascends or descends moves to ~~the~~ a slope on which it descends or ascends to be ~~the~~ a crest of a peak or ~~a~~ root of a valley and for assuming a second changing point at which ~~the~~ a slope on which it sequentially descends or ascends from said first changing point and then ascends or descends to be ~~the~~ a root of ~~the~~ a valley ~~and the~~ or a crest of ~~the~~ a peak, and

a third means for assuming the edge of said digital video signal to exist between said first and second changing points when ~~the~~ absolute value of ~~the~~ a difference between said changing points detected by said first means is higher than ~~the~~ a preset threshold.

17. (Currently amended) A camera device, comprising:

an imaging means for photographing an object and outputting an electric signal;

a signal processing means for processing the electric signal output from said imaging means and generating a first digital video signal;

a means for generating a second digital video signal of a long sample cycle from said first digital video signal; and

an interpolation ~~means~~ device as in claim 11, for interpolating a sample from said second digital video signal, ~~wherein the interpolation device according to claim 11 is used as said interpolation means.~~

18. (Currently amended) The camera device according to claim 17, wherein

a ~~the~~ means for generating a second digital video signal is comprises a memory means, and

said memory ~~means~~ stores said first digital video signal, reads a part of said first digital video signal, and outputs said second video signal of an enlarged picture in which a part of the picture is enlarged using said first digital video signal.

19. (Currently amended) An interpolation method for interpolating a an input digital video signal to be input signal, by a plurality of interpolation means, and selecting and outputting any of a plurality of said interpolated digital video signals ~~that is interpolated from the interpolation means~~, comprising the steps of:

detecting an edge in a period of said input digital video signal by ~~the a~~ predetermined interpolation means among said plurality of interpolation means; enhancing the edge; and

selecting ~~said~~ the interpolated digital video signal of which the edge is enhanced in the detected edge period.

20. (Currently amended) An imaging method for generating a second video signal of a long sample cycle from a signal-processed first digital video signal obtained by ~~the~~ photographing of an imaging means and performing ~~the~~ sample interpolation of said second digital video signal, wherein

the interpolation method according to claim 19 is used for the sample interpolation of said second digital video signal.